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| APPLICATION NO.                                   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/893,784  | 06/29/2001  | Takashi Kitaguchi    | 210371US2           | 6289             |
| 22850   | 7590        | 12/15/2005           | EXAMINER            |                  |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. |             |                      | VIEAUX, GARY        |                  |
| 1940 DUKE STREET                                  |             |                      | ART UNIT            |                  |
| ALEXANDRIA, VA 22314                              |             |                      | PAPER NUMBER        |                  |
|   |             |                      | 2612                |                  |

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                  |  |
|------------------------------|-------------------------------|----------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>09/893,784 | Applicant(s)<br>KITAGUCHI ET AL. |  |
|                              | Examiner<br>Gary C. Vieaux    | Art Unit<br>2612                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 1-22 and 27-35 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24, 39 and 43 is/are allowed.
- 6) ☒ Claim(s) 23, 25-26, 36-38 and 40-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

The Amendment filed September 26, 2005 has been received and made of  
5 record. In response to the first Office Action, claims 23-26 have been amended and  
new claims 36-43 have been added.

### *Claim Objections*

**Claim 42** is objected to because of the following informalities: the claim is not  
10 presented in the proper means plus function language as provided in the claim from  
which dependence is derived, and is instead presented in language similar to that of a  
method claim; additionally, when considered in the means plus function language as  
provided in the claim from which dependence is derived, the claim is found to be  
redundant with the limitations as presented in claim 38. Appropriate correction is  
15 required.

### *Response to Arguments*

Applicant's arguments filed September 26, 2005, with regards to claims 23, 25-  
26, 36-38, and 40-42 have been fully considered but they are not persuasive.

20 Regarding claim 23, Applicants contend (Applicant Remarks, p.19-25) that the  
Dunton reference does not teach calculating an amount of overlap between partial  
images. The Examiner respectfully disagrees.

The Dunton reference is found to provide a teaching of overlap calculation, as provided in the Office Action of February 10, 2005, at column 5 lines 2-6, which states "The second image and the first image *must have a sufficient amount of subject matter overlap* 150 so that the processor will be able to reconstruct the overlapping regions  
5 and generate a stitched panoramic image" (emphasis added), and at column 8 lines 25-32, which states "A processor outputs signals through the LCD prompting the user to maintain *the proper amount of overlap* between sequential images. One method of measuring overlap may be accomplished by causing the processor to select a point on the subject at one edge of the field of view. The processor tracks the movement of the  
10 selected point across the field of view as the camera moves. The camera signals the user when the selected point reaches an area on the opposite edge of the field of view allowing the user to record a second image" (emphasis added.)

In addition to the passages cited, a review the Dunton reference in its entirety provides further teachings of a calculated overlap within its varied embodiments –  
15 column 3 lines 45-47 "Knowledge of the focal length of the lens enables determination of the field of view which *assists in computing overlap regions* 150" (emphasis added), column 6 lines 43-45 "In a preferred embodiment, at least three corresponding points are chosen for each overlap region. An overlap region is the redundant data region where two image are being combined", column 6 line 66 through column 7 line 2 "In the  
20 generation of a typical cylindrical surround image, tilt and lateral movement are minimized and information regarding the distance from the lens to the subject and the focal length of the lens (and, thus, the field of view) has been recorded. Such

information simplifies the rotation, translation and scaling operations *performed by the processing unit to achieve an overlap region that is properly aligned between two images*" (emphasis added), column 7 lines 58-62, "The camera may then proceed to *compute optimum camera positions* from which to take subsequent images in block

5 508. In the camera system 300 of FIG. 3A, the *optimum positions are typically those with the minimum required overlap*" (emphasis added), column 8 lines 43-45, "In block 520, *circuitry within the camera determines* whether the camera is within a tolerance distance or orientation from an optimum position" (emphasis added), and claim 1 at column 9 lines 6-10, "a camera configured to capture a first image at a first orientation  
10 and a second image at a second orientation, the second orientation defined such that an overlap of the first image and the second image is approximately a minimum required overlap". Accordingly, it is clear that the optimum position or the minimum required overlap is calculated by the camera, and not the user (who merely provides manual movement of the camera, e.g., column 8 lines 10-16), as previously suggested  
15 by the Applicant, "Accordingly, the inescapable conclusion is clear that in Dunton, it is the user who determines when the recording is to be made based on sufficient partial image overlap, not block 520" (Applicant Remarks, p.22.)

Applicants also contend that the Dunton reference does not teach automatically recording a current partial image in response to a determination that a current partial  
20 image is to be recorded (Applicant Remarks, p.24.) The Examiner also respectfully disagrees as the Dunton reference is found to teach a camera which, when properly

positioned, records an image (fig. 5 indicators 504 and 524; column 7 lines 56-57; column 8 lines 48-51, and column 4 lines 63-67.)

Finally, Regarding Examiner's use of Official Notice, Applicants attempted traverse is inadequate. "To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art." See MPEP §2144.03. Because the Applicant has not specifically pointed out the supposed errors in the Examiner's action, including stating why the noticed fact is not considered to be common knowledge or well-known in the art, the Examiner finds the traversal to be inadequate.

Based on the foregoing responses, the Examiner respectfully maintains the U.S.C. § 103(a) rejection to claim 23.

Regarding claims 36 and 40, although the wording is different, the material is considered substantively equivalent to claim 23, as discussed above.

Regarding claims 25-26, 37-38, 41 and 42, each depends from independent claim 23, 36 or 40, respectively, and thus inherit all the associated limitations. Consequently, based on their dependence, the foregoing responses to arguments also apply.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2612

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 23, 25-26, 36-38, and 40-42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al. (US 6,304,284) in view of Examiner's Official Notice.

Regarding claim 23, Dunton teaches an image input apparatus comprising an image pickup unit configured to optically scan a subject and thereby acquires plural images of the subject that are partial images of the subject (figs. 1B and 4; col. 6 lines 20-23), wherein said image pickup unit is further configured to obtain the partial images by moving in a plane that is parallel to a plane of the subject and without touching the subject (fig. 1B; col. 4 lines 5-10), an overlapping amount calculating unit configured to calculate an amount of overlap between the partial images picked up by the image pickup unit (col. 5 lines 2-6; col. 8 lines 25-32; also please refer to pages 3 and 4 of this action), and an image recording determination unit configured to determine whether or not the current partial image is to be recorded based upon the amount of overlap calculated by the overlapping amount calculating unit (col. 8 lines 30-32), said image recording unit including a control unit responsive to the determination that a current partial image is to be recorded to automatically perform the recording (fig. 5 indicators 504 and 524; column 7 lines 56-57; column 8 lines 48-51, and column 4 lines 63-67.)

However, although Dunton teaches a camera that is employed the multiple functions of both picking up an image to be used in overlap calculations, as well as picking up images to be recorded, Dunton does not teach separate image pickup units,

in which a first unit is employed in the overlap calculation using an image being picked up, and a second unit employed in the recording of an image being picked up.

Official Notice is taken of the fact that a camera that conducts multiple functions can be substituted with multiple cameras conducting the functions individually; a  
5 concept that is well known and excepted in the art. It would have been obvious to employ separate image pickup units in the device as taught by Dunton, in order to create an apparatus in which the functionality is applied to separate dedicated devices, one device for each function (overlap calculation and recording), resulting in easier troubleshooting and repair based on a simplified design which employs separate  
10 components. This may also result in the potential for easier updating of individual components based on improvements related to their specific functionality.

Regarding claim 25, Dunton teaches all the limitations of claim 25 (see the 103(a) rejection to claim 23 supra) except for directly teaching an image input apparatus wherein said image recording determination unit is further configured to stop acquiring  
15 the partial images when the amount of shift of said first image pickup unit is greater than a desired value. However, Dunton does teach a subsequent image not being recorded until an optimum overlap is achieved (col. 8 lines 42-51.) Based on the teachings of Dunton, it would have been obvious to one of ordinary skill in the art at the time of the invention to include in the determination of optimum overlap, shifts less than the desired  
20 value and shifts of greater than a desired value, in order to insure both enough overlap data for proper reconstruction of the image, as well as to conserve valuable memory by not allowing for capture of unnecessary overlap data.



Regarding claim 26, Dunton teaches all the limitations of claim 26 (see the 103(a) rejection to claim 23 supra) including teaching an image input apparatus further comprising an image composing unit configured to compose all or a portion of the partial images of the subject to obtain a single image (fig. 1A indicator 140; col. 4 lines 25-33.)

Regarding claims 36, 37, 38 and 42, although the wording is different, the material is considered substantively equivalent to claims 23, 25, and 26, respectively, as discussed above.

Regarding claims 40 and 41, although the wording is different, the material is considered substantively equivalent to claims 23 and 25, respectively, as discussed above.

### ***Allowable Subject Matter***

**Claims 24, 39, and 43** are allowed.

The following is an examiner's statement of reasons for allowance: the prior art is not found to teach or fairly suggest, in combination with the existing elements of the present claim as currently amended, counting the time elapsed since a partial image was taken, in order to determine whether the next partial image can be recorded.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE**  
5 MONTHS from the mailing date of this action. In the event a first reply is filed within  
TWO MONTHS of the mailing date of this final action and the advisory action is not  
mailed until after the end of the THREE-MONTH shortened statutory period, then the  
shortened statutory period will expire on the date the advisory action is mailed, and any  
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of  
10 the advisory action. In no event, however, will the statutory period for reply expire later  
than SIX MONTHS from the mailing date of this final action.

***Contact***

Any inquiry concerning this communication or earlier communications from the  
15 examiner should be directed to Gary C. Vieaux whose telephone number is 571-272-  
7318. The examiner can normally be reached on Monday - Friday, 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's  
supervisor, NgocYen T. Vu can be reached on 571-272-7320. The fax phone number  
for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

- 5 For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gary C. Vieaux  
Examiner  
Art Unit 2612

10 Gcv2



NGOC-YEN VU  
PRIMARY EXAMINER